MR FORM 8
Page 1 of 2

Mine: _____
File No: _____

Submitted by:
Applicant _____

Representative _____

Address _____

Division of Oil, Gas, and Mining
1588 West North Temple
SLC, UT. 84116

Re: Commitment to Rule M-10

Gentlemen:

I hereby commit the applicant to comply with Rule M-10, "Reclamation Standards" in its entirety, as adopted by the Board of Oil, Gas, and Mining on March 22n 1978.

The applicant will achieve the reclamation standards for the following categories as outlined from Rule M-10 on all areas of the land affected by this mine, unless a variance is granted in writing by the Division.

Rule	Category of Commitment
M-10(1)	Land Use
M-10(2)	Public Safety & Welfare
M-10(3)	Impoundments
M-10(4)	Slopes
M-10(5)	Highwalls
M-10(6)	Toxic Materials
M-10(7)	Roads and Pads
M-10(8)	Drainages
M-10(9)	Structures & Equipment
M-10(10)	Shafts and Portals
M-10(11)	Sediment Control
M-10(12)	Revegetation
M-10(13)	Dams
M-10(14)	Soils

I believe a variance is justified on a site-specific basis for the following subsections of Rule M-10 for reclamation on this mine and have enclosed as an attachment to this letter a narrative statement setting forth a description of the extent of the variance request and factual reasons for said variance request.

Rule	Category of Variance Request (Narrative Attached)
(4)	A 66% gradient slope prevents application measures such as cross-slope ripping, terracing, etc.
(5)	If Highwalls are solid rock, cutting wall back to achieve 45% slope angle is impossible. Back-fill material is lacking.
(12-3)	Solid rock, insufficient surficial soil does not exist.

STATE OF Utah

COUNTY OF Tooele

We ~~x~~, F.G. McFarland & S.R. Hullinger, having been duly sworn depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

Signed: F.G. McFarland

Signed: S.R. Hullinger

Taken, subscribed and sworn to before me the undersigned authority in my said county, this 23rd day of November, 19 79.

Notary Public: Margene McFarland

My Commission Expires: 1-11-83

Category of Variance Request
Rule M-10 -- Reclamation Standards

Rule (4) Slopes:
Due to a 66% slope that characterizes the Mining Site, cross-slope ripping and terracing would not be possible with equipment due to shallow soil mantle on top of solid rock. It is respectfully requested that the Division waive the Rule 4 requirement.

Rule (5) Highwalls:
Highwalls of solid rock will prevent cutting wall back to achieve a 45% slope angle. No material for back fill will be available. It is requested that the Division waive the requirements of Rule 5, in view of the factors explained.

(12-3) The operator requests that the Division grant exceptions to part 12 due to extensive mined areas of solid rock remain as an aftermath of the mining operations. In view of the sterile rock material which the operator has to use in plantings, it is extremely doubtful that a cover of at least 70% of the vegetative cover surrounding the area can be established.

MINING APPLICATION NO. _____

Date _____

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1588 West North Temple
Salt Lake City, Utah 84116

MINING AND RECLAMATION PLAN

(Other forms may be used in lieu of MR 2, provided they contain the same information)

1. Name of Applicant or Company McFarland & Hullinger

2. Proposed type of operation Open Pit Mining

3. (a) Prior Land Use(s) Grazing

   (b) Current Land Use(s) Mining-Grazing

   (c) Possible or Prospective Future Land Use(s) Grazing

4. What vegetation exists on the land proposed to be affected Traces of Bunchgrass, Shadscale

   (a) Types and Estimated Percent cover or density: Shrub type .05 density -- practically no vegetation

5. What is the pH range of soil before mining? Approx. 8.0 pH

   Name of Person or Agency and method of determining pH No soil test -- Mark Crystal estimated pH by indicator plants, site location

6. Site elevation above sea level 6400

7. In case of coal, oil shale, and bituminous sandstone:

   Principal seam(s) and thickness(es) None

8. Estimated duration of mining operations 10 years

9. Has overburden, waste or rejected materials been classified as acid or alkali producing? ( ) Yes (X) No
   Does the above material being moved have any other characteristics affecting revegetation? No

10. Will any underground workings or aquifers be encountered? ( ) Yes (X) No
    Describe _____

    Is there an active discharge of water from abandoned deep mines on or crossing the land affected? ( ) Yes (X) No If yes, describe the quality of water being discharged. _____

11. Describe specifically a detailed procedure for: (See Attached Narrative)
    (a) The mining sequence
    (b) The procedure for constructing and maintaining access roads, to include a typical cross-section and a profile of the proposed road grades.
    (c) The procedure for site preparation including removing trees and brush.
    (d) The method for removing and stockpiling topsoil or disturbed materials.
    (e) The method for the placement or containment of all disturbed materials, to include the method for handling of all acid or alkali-producing and toxic materials.
    (f) A procedure for final stabilization of disturbed materials.

GRADING AND REGRADING (See Attached Narrative)

Specifically describe:

(a) Typical cross-section of regrading.
(b) The method of spreading topsoil or upper horizon material on the regraded area and indicate the approximate thickness of the final surfacing material.
(c) What type of soil treatment will be utilized.
(d) The method of drainage control for the final regraded area.
(e) Maximum grading slope.

TESTING

1. Describe method for testing stability of reclamation fill material.
   The stability of the soil material in place will not be a problem. No testing of the stability of reclamation fill material is necessary.
   Describe method for the testing of soil that is intended to support vegetation The soil material remaining on the mining site will be used in the re-vegetation program. No test of the soil is necessary

2. Describe any soil treatment employed as an aid to revegetation A 20% Nitrogen Commercial fertilizer will be sed on reclamation sites.

3. Describe surface preparation of areas intended to support vegetation:

   All areas smooth enough to work with equipment will be contoured, if possible, to retain moisture. Seeding of grasses will be applied in any contour trenches, if possible. The reclamation practices will be carried out on the actual acreage areas disturbed.

REVEGETATION

1. Revegetation to be completed by:
   ( ) Operator
   ( ) Soil Conservation District
   (X) Private Contractor
   ( ) Other (specify) _____

   ( ) Hydroseeding
   (X) Aerial Seeding
   ( ) Conventional or Rangeland Drill
   (X) Broadcast and Drag
   ( ) Other _____

2. Will Mulch be used? ( ) Yes ( ) No

Type: Straw Rate/Acre 800 lbs.

3. Revegetation Plan and Schedule -

Species	Rate/ Acre	Planting Location	Facing N-(S)-E-W	Season to be replanted
Western Wheat	4 lb.		S	Fall
Nordan Crested Wheat	5 lb.		S	Fall
Intermediate Wheat	2 lb.		S	Fall
Rabbit Brush	1 lb.		S	"
Shad scale	1 lb.		S	"

4. Will affected area be subject to livestock or wildlife grazing?

(X) Yes ( ) No Will vegetation protection be needed? Yes -- However, private property is adjacent to mining site. No livestock control has been exercised in the past.

5. Will irrigation be used: ( ) Yes (X) No Type _____

6. Describe maintenance procedures for revegetation if needed, until surety release is granted. Livestock grazing should be excluded from surrounding area to facilitate establishment of a vegetative stand of grass. Mining operator has no control over surrounding area concerning livestock grazing.

STATE OF Utah

COUNTY OF Tooele

We, ~~I~~, F. G. McFarland & S. R. Hullinger, having been duly sworn depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

Signed: F G McFarland

Signed S R Hullinger

Taken, subscribed and sworn to before me the undersigned authority in my said county, this 23rd day of November, 19 79.

Notary Public: Margene McFarland

My Commission Expires: 1-11-83

PLEASE NOTE:

Section 40-8-13(2) of the Mined Land Reclamation Act provides as follows:

> "Information relating to the location, size, or nature of the deposit and marked confidential by the operator, shall be protected as confidential information by the Board and the Division and not be a matter of public record in the absence of a written release from the operator, or until the mining operation has been terminated as provided in subsection (2) of section 40-8-21."

Is confidential information contained herein?

YES FGMc (Initial)

NO SRH (Initial)

Sections desired to be maintained as confidential information -

_____ _____ _____

_____ _____ _____

_____ _____ _____

11. Site description of the open-pit Mining Operation - Mining Sequence:

(a) The Crystal Mine open-pit operation will be carried out on a steep slope having a 66% gradient. Limestone rock ledge outcroppings, with a shallow soil-rock overburden characterize the mining site. At the base of the steep slope some alluvial material has been deposited as a result of sheet erosion originating from the steep slopes. The site area has been heavily grazed by sheep and deer over a period of a century. The open-pit mining operation will be restricted to two or three different ledge-rock outcroppings that are spaced at about 50-foot intervals on the steep slope. The operations in blasting and removing the limestone rock will follow westward and eastward direction along a contour from a principal drainage. The mining operation will be conducted in a safe and orderly fashion.

(b) Access roads will lead westward and eastward from a central access road, along a contour above each rock outcropping to enable drilling equipment to perforate the ledgerock for blasting. Each access road leading to the drilling sites follows a moderate gradient along a contour.

(c) A few pinon and juniper trees and some shrubs will be removed from the open-pit sites. Very sparse vegetation grows on the steep slopes.

(d) Due to the extreme gradient of 66%, only a very thin mantle of topsoil and rock material covers the limestone ledge rock. The steepness of the slope prevents salvaging the topsoil material. However, at the base of the slope, the thin mantle of topsoil will be stockpiled and used during the reclamation phase of the mining operation.

(e) After removal of any topsoil at the base of the steep slope, where the mining operations are situated, a depression is excavated to contain any rock material that rolls down the slope after blasting as a safety factor. The material excavated from the man-made depressions will be pushed back and topped with any topsoil stock piled preparatory to a rehabilitation program following the completion of the mining operations. No alkali -- and no toxic materials will result from the described mining operations. No toxic material having adverse effects on a rehabilitation program will be used.

(f) The steepness of the slope-site of the mining operations prevents a reclamation of the disturbed area with topsoil because there is none to work with on the steep slopes. However, the resultant stair-step surface

will be cleaned of any loose rocks. The floor area between the perpendicular walls that will remain after the limestone rock material has been mined and removed can be sloped inward to catch precipitation and facilitate any plantings of vegetation that may be made as part of the rehabilitation program.

GRADING AND REGRADING

(a) Due to the steep slope profile and method of limestone rock material removal, of the mining operations, a regrading may not be possible, especially where perpendicular walls (Highwalls) may be left as a result of rock removal. However, if the gradient of the slope, after mining operations are completed, can be modified to facilitate re-vegetating the surface, the slopes will be modified to a lower gradient.

(b) (c) Steepness of slope, as described in 11. (d), prevents collecting and stock piling of topsoil. However, if any topsoil can be salvaged, it will be used, in appropriate small critical areas, to accomplish the most beneficial results. Also, straw can be scattered on the disturbed areas to facilitate retention of moisture and improve the micro-climatic factors for revegetation.

(d) (e) Areas between the perpendicular rock walls will be modified to lessen gradient and retain moisture from precipitation in the final phase of rehabilitating the mined site area. The areas excavated at the base of the steep hill, mining site to intercept rolling rock material during the mining operations will be refilled with the same soil material and any topsoil stock piled will be scattered in a thin mantle on top as a seed bed for revegetation.